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Differences In Primary Menstrual Pain Intensity Before And After Giving Turmeric Medicine To Adolescent Girls

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ABSTRACT

Background: One of the problems experienced by adolescents, especially female adolescents, is menstrual pain. Menstrual pain management can be done with non-pharmacological methods, one of which is the administration of turmeric loloh. The purpose of this study was to determine the difference in the intensity of primary menstrual pain before and after the administration of turmeric loloh in female adolescents girls. **Method:** The research method used was a pre-experiment with a one-group pretest-posttest design. The sample size used was 20 female adolescents selected by purposive sampling. Pain intensity assessment was carried out using a numeric rating scale (NRS). Research data were taken with the intensity of primary menstrual pain before and after administration of turmeric loloh for two days as much as 150 ml in the morning and evening. Bivariate analysis used the Wilcoxon test with $\alpha < 0.05$. **Result:** The results of the menstrual pain intensity score before the administration of turmeric loloh showed a median value of 5 and after the administration of turmeric loloh there was a decrease in the median value of 2 with a p value of 0.00 $< \alpha$ (0.05) and a Z value of -3.970. **Conclusion:** In conclusion, there is a significant difference in the intensity of primary menstrual pain in adolescent girls before and after administration of turmeric loloh. Turmeric loloh is recommended for adolescent girls as a non-pharmacological alternative to reduce the intensity of primary menstrual pain.

Keywords: adolescent girls; menstrual pain; turmeric loloh



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INTRODUCTION

Menstruation is a physiological process in women who have experienced puberty, during menstruation some women experience various menstrual disorders ranging from mild to quite severe. Disorders during menstruation that often occur are abdominal spasms due to smooth muscle contractions in the uterus, causing headaches, abdominal pain, weakness and pain (Widyanthi and Resiyanthi, 2021).

Excessive pain in the lower abdomen is called dysmenorrhea caused by the production of prostaglandins, causing uncoordinated uterine contractions related to the tone and contractility of the intestinal muscles. Dysmenorrhea usually occurs immediately after the first menstruation is characterized by pain in the pelvis and abdomen occurring on the first to second day of menstruation.

Adolescents who experience dysmenorrhea experience impaired quality of life and are at high risk of anxiety and depression (Sachedina and Todd, 2020). The most common menstrual pain is primary menstrual pain, which occurs since the first menstruation and will recover on its own over time. Menstrual pain is normal but can be excessive if influenced by psychological and physical factors such as stress, shock, narrowing of blood vessels, chronic diseases, anemia and declining body condition (Widyanthi and Resiyanthi, 2021).

Efforts are made to overcome dysmenorrhea, namely by pharmacological and non-pharmacological methods. Pharmacological methods include the administration of non-steroidal anti-inflammatory drugs (NSAID). Management of menstrual pain using pharmacological methods can only be given according to indications because each drug can cause side effects (Khotimah and Lintang, 2022). Common side effects of administering NSAID to reduce menstrual pain are gastric ulcers and can be accompanied by secondary anemia due to bleeding, impaired platelet function, and gastrointestinal problems (Hartinah et al., 2023). The side effects caused by pharmacological methods are the need for other therapies that are safe for the body, namely by using non-pharmacological methods (Khotimah and Lintang, 2022). Non-pharmacological methods that can be used to overcome



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menstrual pain include warm compresses, cold compresses, yoga, massage and herbal drinks such as turmeric (Hartinah et al, 2022).

Loloh is a traditional Balinese drink that is produced by a simple home industry. Information on the quality and safety of loloh related to microbial contamination is limited, so it needs attention in consumer protection efforts. The efficacy of loloh as a health drink is believed by the Balinese people from generation to generation, especially after the tendency of people to seek alternative natural treatments derived from plants. Loloh was originally a home product that was not traded, because the high demand for loloh resulted in an increase in the home industry producing loloh. Loloh is made from turmeric extract with water, ground then filtered, a little sugar is added to the filtrate and then ready to be packaged in plastic bottles (Putrawan, 2020).

Turmeric (*Curcuma domestica* Val) is the most effective ingredient in reducing pain intensity. Turmeric decoction has antioxidant activity because it contains phenolic compounds that are useful as analgesics, anti-inflammatories, antioxidants, and antimicrobials. Turmeric is said to be the most effective in reducing pain intensity because turmeric has the highest oleoresin content so that the oleoresin content in turmeric contains cyclooxygenases which can inhibit the formation of prostaglandin levels as anti-inflammatory and antioxidant mediators, thus helping muscles to relax so that inflammation and pain decrease. Research on turmeric infusions often focuses on its biological properties in aqueous media, rather than pure oleoresin extraction. Examples of concentrations used include: 5% and 10%: These concentrations are commonly chosen in research as antiseptic solutions or for specific medicinal purposes 10%, 20%, and 30%: Higher concentrations have also been explored for their stronger effectiveness in some studies. (Baiti dkk. 2021).

Research conducted by Rahayu dan Karimi (2024) stated that there is an effect of turmeric drinks on menstrual intensity in adolescent girls. As a natural analgesic, it has advantages compared to others, namely that the ingredients are easy to obtain, the method of making it is easy, the ingredients needed are cheap



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and do not have side effects that are harmful to health. The difference between previous and current research is in terms of the samples and research methods used and includes the results of the high levels of astirin oil produced by turmeric.

The results of a preliminary study conducted on December 29, 2024 at State Junior High School 6 Denpasar, the results of interviews with 11 female students, found that 10 female students (10%) experienced dysmenorrhea and 6 (6%) female students said that the dysmenorrhea they felt interfered with their activities. Efforts made by the school to overcome menstrual pain are only using pharmacological methods by administering pain relievers and eucalyptus oil. There is no non-pharmacological treatment as an alternative to reduce the intensity of menstrual pain in adolescent girls at State Junior High School 6 Denpasar, so the researcher is interested in conducting a study on the difference in the intensity of primary menstrual pain before and after giving turmeric loloh. This study is expected that female students and the school can overcome primary menstrual pain by utilizing non-pharmacological therapy of turmeric loloh drinks.

Based on the description of the background above, the author is interested in conducting research on "Differences in the Intensity of Primary Menstrual Pain Before and After Giving Turmeric Loloh to Adolescents".

METHOD

A. Design

This study is a comparative study using analysis in statistics and numbers. The design of this study is pre-experimental with one group pretest-posttest design where in this study a causal relationship is used by looking at one group of subjects, then the subjects are observed before being given the intervention and re-observed after being given the intervention. Measurement of pain intensity in this study was measured 2 times, namely before being given the intervention (pre-test) and after being given the intervention (post-test) (Heryana, 2020).



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B. Context

This research was conducted at State Junior High School 6 Denpasar located at Jalan Gurita, Sesetan, South Denpasar. The researcher chose this location because after conducting preliminary research on 11 female students, it was found that 10 female students experienced dysmenorrhea. Another reason the researcher chose State Junior High School 6 Denpasar was that there had been no research on the management of menstrual pain with non-pharmacological methods at the school. This research was conducted for 3 months from March 2025 to June 2025.

C. Population and Sample

1. Population

The target population in this study were 210 female students of grade IX of SMP Negeri 6 Denpasar. The researcher selected respondents with the following inclusion and exclusion criteria:

a) Inclusion criteria:

- 1) Grade IX students who are willing to be respondents
- 2) Students who do not have a history of disease or reproductive problems
- 3) Students who experience abdominal pain due to menstruation, menstrual pain is felt on the first day of menstrual pain from day 1 to day 2 of menstruation.
- 4) Students who do not have a history of allergies to turmeric.

b) Exclusion criteria:

- 1) Students who are absent from the study due to illness.
- 2) Students who experience severe abdominal pain and require further treatment (referral).
- 3) Students who take menstrual pain relievers.

2. Sample

This study used Non-probability sampling technique with purposive sampling technique. The sample in this study amounted to 20 female adolescent respondents, namely grade IX students of SMP Negeri 6 Denpasar who experienced



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menstrual pain on the first to second day who met the inclusion and exclusion criteria who were willing to be involved in this study.

D. Data Collection

1. Types of data collected

The data collected in this study were primary data. Primary data is data that comes directly from the subject of observation or measurement and comes from the first source (Heryana, 2020). The type of primary data collected in this study used the Numeric Rating Scale (NRS) in assessing pain intensity semi-quantitatively by asking respondents to choose a number from 0 to 10 to describe the pain before the intervention was given and re-select a number from 0 to 10 to describe the pain felt after the intervention was given.

2. Data collection technique

There are steps that researchers take in the process of collecting research data. The following describes the steps in data collection carried out by researchers:

- a). After the supervisor and examiner give permission, the researcher asks for a permit to collect research data from the Head of the Midwifery Department with the number PP.06.01 / F.XXXII.14 / 0225/2025.
- b). Submitting ethical clearance to the ethics commission of the Denpasar Ministry of Health Polytechnic with the ethical approval number DP.04.02 / F.XXXII.25 / 116/2025.
- c). The researcher asks for permission from the Principal of State Junior High School 6 Denpasar to conduct research and explain the research that will be conducted at State Junior High School 6 Denpasar with the number PP.06.02 / XXIV.14 / 1355/2025.
- d). Carrying out the data collection process on grade IX students, then looking for respondents according to the predetermined inclusion criteria.
- e). Introducing oneself as an effort to approach potential respondents and explaining the objectives, procedures and benefits of the research so that potential respondents know about it. This research was conducted in Class IX classroom at SDN 6 Denpasar and the time required for this research was 30 minutes and the privacy of



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the respondents would be guaranteed safe by the researcher. Respondents were also explained that identities such as names were not included in the research and any unexpected events or accidents during the intervention would be borne by the researcher.

f). The researcher made a time contract with respondents who were willing to be research subjects by signing a letter of respondent consent (informed consent) signed by the parents of students who were willing for their children to be research subjects.

g). Making turmeric loloh herbal medicine, taken from Pengelipuran Village, Bangli, the turmeric used was 2 months old with a weight of 300 grams of turmeric, 100 grams of brown sugar, 10 grams of salt. In the process of making turmeric loloh, the heating of the turmeric loloh was 60-100°C which aims to kill microorganisms such as bacteria, mold, and yeast and storage at a temperature of 18°C.

h). Respondents who meet the criteria for pre-testing were given on the first morning by conducting a direct assessment at State Junior High School 6 Denpasar according to the observation sheet related to the pain complaints felt. Pain intensity assessment was carried out using the numeric rating scale (NRS) method.

i) Pretest data collection was carried out on the first day of menstruation. The intervention, namely by giving turmeric loloh, was carried out on the first day of menstruation for two days, to ensure that respondents drank turmeric loloh, a WA (WhatsApp) group was created so that all respondents could see drinking the turmeric loloh. Posttest data collection was carried out on the second day of menstruation.

j). How to make turmeric loloh, namely peel then wash thoroughly, puree the turmeric, boil the pureed turmeric until boiling, add brown sugar to the turmeric decoction then add salt, after boiling, cool and then filter, the turmeric is put into a 150 ml bottle which is given to each bottle sample to be consumed 2x a day (morning and evening) for 2 days.



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k). After being given intervention on the second day, respondents were then given a post-test to review the intervention to SDN 6 Denpasar according to the statements on the observation sheet. Pain assessment was carried out by measuring the pain scale using the numeric rating scale (NRS) method.

l0ta was collected, data processing and data analysis were carried out with a computer program by presenting master data.

m. Preparation of the final research report.

E. Data Analysis

The data analysis technique used in this study is univariate and bivariate analysis which aims to describe or explain the characteristics of each variable in this study:

1. Univariate analysis

Univariate analysis was carried out by testing the normality of the data using Shapiro Wilk, the results of the data normality test obtained a value of $p = 0.001$, the results of the data in this study showed that the data were not normally distributed, so that the data on the intensity of menstrual pain were presented in the form of a median, minimum, and maximum. Characteristic data are presented in the form of frequency distribution and percentage.

2. Bivariate analysis

Bivariate analysis was conducted to determine the differences in the intensity of primary menstrual pain before and after the administration of turmeric loloh in adolescent girls. Bivariate analysis in this study used the Wilcoxon test because the data was not normally distributed, the results obtained in this analysis were at the p value (probability).

F. Research Ethics

The general ethical principles of health research that have been recognized and agreed upon include 3 principles, where these principles have moral strength so that a study can be accounted for. When the ethical principles include:

1. The principle of respect for human dignity (Respect for persons)



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This principle is a form of respect for a person's self-esteem as an individual who has the freedom to choose and is responsible for his or her own decisions. In this study, respondents obtained complete information about the freedom and right to refuse or participate as respondents and respondents were given complete information about the purpose of the study. If the respondent is willing or agrees to become a prospective respondent, they are required to fill out an informed consent and if the prospective respondent is unwilling or does not agree, data collection is not carried out. The benefits obtained by adolescent girls who become respondents, namely adolescent girls can find out that the treatment of menstrual pain experienced can be done with non-pharmacological treatment by giving turmeric loloh.

2. The principle of doing good (beneficence) and not harming (non-maleficence)

The ethical principle of doing good is related to helping others which is done by trying to provide maximum benefits with minimal losses. In this study, female adolescents who are willing and selected to be respondents can help achieve the research objectives and researchers have considered the risks obtained by respondents as research subjects. Researchers gave female students who were willing to be respondents a gift in the form of 1 box of parcels and each respondent received a 2GB quota voucher.

3. Principle of justice

The ethical principle of justice means that the obligation of this ethic is to treat every individual equally according to the right and proper morals in obtaining their rights. This ethical principle concerns equal justice (distributive justice) with the condition of distribution (equitable) in terms of benefits and burdens obtained by respondents from participating in the research. In this study, the researcher provides equal treatment without discriminating between each respondent later.



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RESULTS

A. Characteristics of research subjects

The subjects of this study were 20 female adolescents who experienced primary menstrual pain at State Junior High School 6 Denpasar who met the inclusion and exclusion criteria

Table 1

**Frequency Distribution of Characteristics of Female Adolescent Respondents
at State Junior High School 6 Denpasar in 2025**

Number	Respondent Characteristics	Frequency (f)	Percentage (%)
1.	Age		
	14 tahun	11	55
	15 tahun	9	45
Total		20	100
2.	Age of <i>Menarche</i>		
	≤ 12 tahun	12	60
	>12 tahun	8	40
Total		20	100
3.	History of Dysmenorrhea		
	Yes	12	60
	No	8	40
Total		20	100

Table 1 shows the characteristics of the research subjects at State Junior High School 6 Denpasar in 2025. Based on the table above, most of the research subjects were 14 years old, as many as 11 people (55%), most of the menarche age of the research subjects was <12 years, as many as 12 people (60%), and most had a history of dysmenorrhea, as many as 12 people (60%).



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Table 2

Data normality test

	Df	Significance
<i>Pretest</i>	20	,001
<i>Posttest</i>	20	,001

The results of the data normality test using the Shapiro Wilk test show that the data is not normally distributed, so the data is presented in the form of median, minimum, and maximum values.

B. Intensity of primary menstrual pain before being given turmeric loloh

The results of observations of the intensity of primary menstrual pain felt by 20 female adolescent respondents before being given turmeric loloh are presented in Table 3.

Table 3

**Primary Menstrual Pain Intensity Before Giving Tumeric Loloh at
State Junior High School 6 Denpasar in 2025**

Pain Level	Frequency (<i>Pretest</i>)	Percentage (%)	Median	Minimum	Maximum
4	8	40	5	4	6
5	7	35			
6	5	25			
<hr/>					
Total	20	100			

Presentation of data in table 3, it can be seen that before the intervention of giving turmeric loloh, the intensity of primary menstrual pain in adolescent girls. The intensity of pain was felt with the lowest level of pain with a score of 4 as many as 8 people, the highest score of 6 as many as 5 people, and a median of 5 as many as 7 people with a percentage. It can be concluded that before the intervention of turmeric loloh, the highest pain intensity score of respondents was with a score of 4 as many as 8 people.



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c. Intensity of primary menstrual pain after being given turmeric loloh

The results of observations on the intensity of primary menstrual pain felt by 20 female adolescent respondents before being given turmeric infusion are presented in Table 4.

Table 4

**Primary Menstrual Pain Intensity After Giving Tumeric Loloh at
State Junior High School 6 Denpasar in 2025**

Pain Level	Frequency (<i>Post Test</i>)	Percentage (%)	Median	Minimum	Maximum
1	3	15	2	1	3
2	9	45			
3	8	40			
Total	20	100			

Presentation of table 4, it can be seen that after the provision of turmeric loloh intervention, the intensity of primary menstrual pain in adolescent girls. The intensity of pain was felt with the lowest level of pain with a score of 1 as many as 3 people, the highest score of 3 as many as 8 people, and a median of 2 as many as 9 people. It can be concluded that after the provision of intervention, the highest pain intensity score of respondents was with a score of 2 as many as 9.

D. Differences in the Intensity of Menstrual Pain in Adolescent Girls Before and After Giving Tumeric Loloh

The results of the analysis using the Wilcoxon test, the intensity of primary menstrual pain felt by 20 female adolescent respondents before and after being given turmeric loloh are presented in Table 5.



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Table 5

Differences in Intensity of Menstrual Pain in Adolescent Girls Before and After Giving Tumeric Loloh at State Junior High School 6 Denpasar in 2025

Primary Menstrual Pain Intensity		N	Mean Rank	Sum of Ranks	Nilai Z	Nilai p
<i>Posttest-Pretest</i>	Negative Ranks	20	10,50	210,00	-3.970	0,000
	Positive Ranks	0 ^b	0,00	0,00		
	Ties	0 ^c				
Total		20				

In table 5, negative ranks are explained as the number of data pairs where the value given treatment is smaller than the value before treatment, that all respondents as many as 20 female adolescents experienced a decrease in the intensity of menstrual pain after being given turmeric loloh. The mean rank value or average rank is 10.50 and the sum of rank value or the number of ranks against the increase is 210.00. The results of the bivariate analysis with the Wilcoxon test obtained a Z value of -3.970 with a p value = 0.00 ($\alpha < 0.05$). This shows that there is a significant difference in the intensity of primary menstrual pain in female adolescents before and after being given turmeric loloh, thus giving turmeric loloh is useful in reducing the intensity of primary menstrual pain in female adolescents.

DISCUSSION

A. Primary Menstrual Pain Intensity of Adolescent Girls Before Giving Tumeric Loloh

The results of this study indicate that the intensity of menstrual pain felt by adolescent girls before giving tumeric loloh is presented in table 4 and it was found that the minimum menstrual pain intensity score of adolescent girls was 4 for 8



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people (40%), the maximum score was 6 for 5 people (25%), and the median score was 5 for 7 people (35%). The category of pain felt by all respondents in this study can be categorized as moderate pain.

Another study conducted by Umma et al (2021) entitled The Effect of Turmeric on Reducing Menstrual Pain During Menstruation at SMAN 2 Pamekasan stated that the results of the study showed that before being given turmeric drinks, the intensity of menstrual pain was most categorized as mild pain with a score of 3 for 43 people (75%), and a score of 5 moderate pain for 14 people (24%) and none of the respondents had no pain and severe pain. In Utami's study (2024) entitled The Effect of Giving a Combination of Turmeric Drinks on Reducing the Intensity of Menstrual Pain in Adolescent Girls in Bendan Village, it can be seen that out of 67 respondents, the lowest pain score was 4 and the highest score was 6, the pain score felt by respondents in this study before being given turmeric drinks could be categorized as moderate pain.

Based on this study and previous studies, the researcher concluded that before giving turmeric loloh, most respondents experienced moderate pain levels that could interfere with their daily activities. Research by Horman et al. (2021) found several factors that could influence primary dysmenorrhea, including age of menarche, duration of menstruation, family history, and exercise habits. Based on Table 3, the majority of respondents were 14 years old (55%), most respondents experienced their first menstrual pain on the first day (60%), most respondents experienced menarche at the age of <12 years (60%), and most respondents had a history of dysmenorrhea (60%).

B. Intensity of Primary Menstrual Pain After Giving Turmeric Loloh

The results of the study showed that after the administration of turmeric loloh presented in table 5, the minimum score of menstrual pain intensity felt by the adolescent girls was 1 for 3 people (15%), the maximum score was 3 for 8 people (40%), and the median score was 2 for 9 people (45%). Based on the data obtained, there was a decrease in the intensity score of menstrual pain after being given turmeric loloh.



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The results of the study showed that after being given turmeric loloh, all respondents experienced mild pain levels. The results of the study by Rahayu and Karmi (2024) stated that after being given the intervention of giving turmeric loloh, all respondents experienced a decrease in pain levels. It can be concluded that giving turmeric loloh can be an alternative to overcome menstrual pain in adolescent girls and can support the diversity of non-pharmacological pain treatments.

C. The Effect of Giving Turmeric Loloh on Menstrual Pain in Adolescent Girls

The results of the normality test using the Shapiro Wilk test showed that in this study the data were not normally distributed, so further analysis used the Wilcoxon test. The results of the data analysis on the difference in the intensity of primary menstrual pain before and after giving turmeric loloh showed that turmeric loloh can reduce the intensity of menstrual pain with a p value = 0.00 ($\alpha < 0.05$). The mean rank value or average rank is 10.50 and the sum of rank value or number of ranks has increased by 210.00. This shows that there is a significant difference in the intensity of primary menstrual pain in adolescent girls before and after giving turmeric loloh, thus turmeric loloh is useful in reducing the intensity of primary menstrual pain in adolescent girls.

Researchers can conclude that giving turmeric loloh can be used as a non-pharmacological method to overcome primary menstrual pain, especially for adolescent girls with pain intensity scores of 1 to 6. Turmeric is also used as another alternative treatment in reducing the intensity of pain in various other diseases because the content of red turmeric can inhibit the formation of prostaglandin levels as an anti-inflammatory or pain mediator and antioxidant, thus helping muscles to relax and inflammation of pain decreases so that the body becomes relaxed.



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CONCLUSION

Based on the research results, the conclusions of this research are as follows:

1. The intensity of primary menstrual pain in adolescent girls before being given turmeric loloh is with a median score of 5, a minimum score of 4, and a maximum score of 6.
2. The intensity of primary menstrual pain in adolescent girls after being given turmeric loloh is with a median score of 2, a minimum score of 1, and a maximum score of 3.
3. There is a significant difference in the intensity of primary menstrual pain in adolescent girls before and after being given turmeric loloh

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